­National College of Ireland

Higher Diploma in Science in Cloud Computing

2014/2015

Leszek Dubicki

X14125439

Leszek.dubicki@student.ncirl.ie

Cad Cloud

Technical Report



**Table of Contents**

[Executive Summary 3](#_Toc351559315)

[1 Introduction 3](#_Toc351559316)

[1.1 Background 3](#_Toc351559317)

[1.2 Aims 3](#_Toc351559318)

[1.3 Technologies 3](#_Toc351559319)

[1.4 Structure 3](#_Toc351559320)

[2 System 3](#_Toc351559321)

[2.1 Requirements 3](#_Toc351559322)

[2.1.1 Functional requirements 3](#_Toc351559323)

[2.1.2 Data requirements 3](#_Toc351559324)

[2.1.3 User requirements 3](#_Toc351559325)

[2.1.4 Environmental requirements 3](#_Toc351559326)

[2.1.5 Usability requirements 3](#_Toc351559327)

[2.2 Design and Architecture 3](#_Toc351559328)

[2.3 Implementation 3](#_Toc351559329)

[2.4 Testing 3](#_Toc351559330)

[2.5 Graphical User Interface (GUI) Layout 3](#_Toc351559331)

[2.6 Customer testing 3](#_Toc351559332)

[2.7 Evaluation 3](#_Toc351559333)

[3 Conclusions 3](#_Toc351559334)

[4 Further development or research 3](#_Toc351559335)

[5 References 3](#_Toc351559336)

[6 Appendix 3](#_Toc351559337)

[6.1 Project Proposal 3](#_Toc351559338)

[6.2 Project Plan 3](#_Toc351559339)

[6.3 Requirement Specification 3](#_Toc351559340)

[6.4 Monthly Journal 3](#_Toc351559341)

[6.5 Other Material Used 3](#_Toc351559342)

# Executive Summary

Maximum 300 words. The abstract should mention the problem being addressed, describe the technical solution and briefly report the findings of the evaluation.

# Introduction

This template for technical report is provided for your convenience. It should be seen as a guide rather than an obligatory form. Your individual report might require changes in terms of format or content (i.e., headings) or both.

Print on one side of the paper only (this will be the right hand side when the pages are bound).

## Background

Why? This section should provide a clear background on the project, its novelty, similarity and differences of existing systems/applications.

## Aims

What? Describe the aims of the project.

## Technologies

How? - Brief description of the technologies used in the project. Do not copy & paste descriptions from websites here, but describe what it is and how it contributes to your project.

## Structure

Brief overview of each chapter

# System

## Requirements

This section will be similar or an updated version to your original requirements specification. Requirements have probably evolved somewhat since. Where this is the case explain what changed and why.

### Functional requirements

### Data requirements

### User requirements

### Environmental requirements

### Usability requirements

## Design and Architecture

Describe the design, system architecture and components used. Describe the main algorithms used in the project. (Note use standard mathematical notations if applicable).

An architecture diagram may be useful. In case of a distributed system, it may be useful to describe functions and/or data structures in each component separately.

CADCloud application is designed to have a client-server structure, with one server instance and several clients connected to it. The server is providing a platform for data exchange between CAD applications (CAD to CAD and CAD to other apps).

The server component is developed as a REST-full API using Python with flask framework and SQLAlchemy (flask-SQLAlchemy) extension to manage database. The API provides the following entry points (URI-s):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| API Name | HTTP Method | URI | Action | Parameters | Pre/Post conditions |
|  | GET | / | Retrieve the main page of the application | None | None |
|  | GET | /cad/api/v0.1/projects | Retrieve the list of all projects | None |  |
|  |  | /cad/api/v0.1/projects\_list |  |  |  |
|  |  | /cad/api/v0.1/projects/<int:project\_id> |  |  |  |
|  |  | /cad/api/v0.1/projects\_by\_num/<string:project\_number> |  |  |  |
|  |  | /cad/api/v0.1/projects/add |  |  |  |
|  |  | /cad/api/v0.1/projects/edit/<int:project\_id> |  |  |  |
|  |  | #delete project here: |  |  |  |
|  |  | /cad/api/v0.1/variables/add/<int:project\_id> |  |  |  |
|  |  | /cad/api/v0.1/variables/edit/<int:project\_id>/<string:variable\_type>/<int:variable\_id> |  |  |  |
|  |  | /cad/api/v0.1/variables/edit/<int:project\_id>/<string:variable\_name> |  |  |  |
|  |  | /cad/api/v0.1/variables/<int:project\_id> |  |  |  |
|  |  | /cad/api/v0.1/get\_variable/<int:project\_id>/<string:var\_name> | get a variable within a project by name |  |  |
|  |  | #delete variable here |  |  |  |
|  |  |  |  |  |  |

## Implementation

Describe the main classes/functions used in the code. Consider to show and explain interesting code snippets where appropriate.

## Testing

Describe any testing tools, test plans and test specifications used in the project

## Graphical User Interface (GUI) Layout

Provide screenshots of key screens and explain.

## Customer testing

Provide evidence for and results of customer testing. This may include ratings or quotes from the customer.

## Evaluation

How was the system evaluated and what are the results? In many cases this will include usage data and user feedback. It may also include performance evaluations, scalability, correctness, etc. depending on the focus of the project.

Quantative results may be reported in tables or figures. Note that tables have their caption above the table and need to be cross referenced in the text (see **Error! Reference source not found.**). In many cases, tables are better to read if you skip the vertical lines.

Table 1: Performance with and without caching

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Nwithout** | **Nwith** | **Std.-Deviationwith** | **Std.-Deviationwithout** | **p** |
| Records | 100 | 200 | 2.54 | 3.97 | .002 |
| Data (GB) | 100 | 200 | 2.54 | 3.97 | .002 |
| Speed | 100 | 200 | 2.54 | 3.97 | .002 |

Figures have their caption below the figure as shown in **Error! Reference source not found.**. Make sure that if you use colour, the figure is still readable when printed in black & white, e.g., by using additional symbols, patterns, etc.



Figure 1: Learning gain across different experimental groups

# Conclusions

Describe the advantages/disadvantages, opportunities and limits of the project.

# Further development or research

With more resources, where could the results of this project lead to?

# References

Students should use the Harvard referencing style.

Please consult the CITE@NCI handbook available in the Library.

# Appendix

Attach all your partial submissions as appendices.

## Project Proposal

## Project Plan

## Requirements Specification

## Project Analysis & Design

## Project Test Plans

## Monthly Journals

### Monthly Journal #1

### Monthly Journal #2

### Monthly Journal #3

## Other Material Used

Any other reference material used in the project for example evaluation surveys etc.

**NOTEs:**

* **The report has to be printed in 2 hard/soft bound copies and submitted to the School Office.**
* **CDs containing code should be glued to the technical report.**
* **Report and code will also be submitted through Moodle.**